What is claimed is:

1. An excimer or molecular fluorine laser system, comprising:

a discharge chamber filled with a gas mixture at least including a halogen-containing molecular species and a buffer gas;

a discharge circuit;

a plurality of electrodes within the discharge chamber and connected to the discharge circuit for energizing the gas mixture;

a resonant cavity including the discharge chamber for generating a laser beam; and

an intracavity homogenizer for homogenizing an intensity profile of the laser beam generated in the resonator, the intracavity homogenizer at least including:

a first bi-prism and a second bi-prism disposed at opposite ends of the resonant cavity and having the discharge chamber disposed therebetween, and

wherein optical axes of the first bi-prism and the second bi-prism are each at least substantially parallel to the optical axis of the laser beam.

2. The laser system of Claim 1, wherein the first bi-prism includes an angled face and a normal face, the angled face being oriented toward the discharge chamber including at least one segment oriented so that a normal to the segment forms an acute angle with an optical axis of the laser beam, and the normal face includes a reflective coating formed thereon opposite the angled face, and a normal to the normal face is at least substantially parallel to the optical axis of the laser beam.

3. The laser system of Claim 2, wherein the second bi-prism includes an angled face and a normal face, the angled face being oriented toward the discharge chamber including at least one segment oriented so that a normal to the segment forms an acute angle with the optical axis of the laser beam, and a normal to the normal face is at least substantially parallel to the optical axis of the laser beam.

4. The laser system of Claim 3, wherein the planar face of the second bi-prism includes a reflective coating formed thereon opposite the angled face of the second bi-prism.

5. An excimer or molecular fluorine laser system, comprising:

a discharge chamber filled with a gas mixture at least including a halogen-containing molecular species and a buffer gas;

a discharge circuit;

a plurality of electrodes within the discharge chamber and connected to the discharge circuit for energizing the gas mixture;

a resonant cavity including the discharge chamber for generating a laser beam; and

an intracavity homogenizer for homogenizing an intensity profile of the laser beam generated in the resonator, the intracavity homogenizer at least including:

a bi-prism disposed at one end of the resonant cavity, and

wherein an optical axis of the bi-prism is at least substantially parallel to the optical axis of the laser beam.

6. The laser system of Claim 5, wherein the bi-prism includes an angled face and a normal face, the angled face being oriented toward the discharge chamber including at least one segment oriented so that a normal to the segment forms an acute angle with an optical axis of the laser beam, and a normal to the normal face is at least substantially parallel to the optical axis of the laser beam.

7. The laser system of Claim 6, wherein the normal face of the bi-prism includes a reflective coating formed thereon opposite the angled face of the bi-prism.

8. An excimer or molecular fluorine laser system, comprising:

a discharge chamber filled with a gas mixture at least including a halogen-containing molecular species and a buffer gas;

a discharge circuit;

a plurality of electrodes within the discharge chamber and connected to the discharge circuit for energizing the gas mixture;

a resonant cavity including the discharge chamber for generating a laser beam; and

an intracavity homogenizer for homogenizing an intensity profile of the laser beam generated in the resonator, the intracavity homogenizer at least including:

a bi-prism disposed within the resonant cavity, and

wherein an optical axis of the bi-prism is at least substantially parallel to the optical axis of the laser beam.

9. The laser system of Claim 8, wherein the bi-prism includes an angled face and a normal face, the angled face including at least one segment oriented so that a normal to the segment forms an acute angle with an optical axis of the laser beam, and a normal to the normal face is at least substantially parallel to the optical axis of the laser beam.

10. The laser system of Claim 9, wherein the angled face of the bi-prism is oriented toward the discharge chamber.

11. The laser system of Claim 9, wherein the planar face of the bi-prism has a reflective layer formed thereon as a resonator reflector surface.

12. The laser system of Claim 8, wherein the bi-prism is disposed between a resonator reflector optic and the discharge chamber.

13. The laser system of Claim 8, wherein the resonant cavity further includes at least one line-narrowing optic for reducing a bandwidth of the laser beam.

14. The laser system of Claim 8, further comprising a gas-handling module for replenishing the gas mixture.

15. An excimer or molecular fluorine laser system, comprising:

a discharge chamber filled with a gas mixture at least including a halogen-containing molecular species and a buffer gas;

a discharge circuit;

a plurality of electrodes within the discharge chamber and connected to the discharge circuit for energizing the gas mixture;

a resonant cavity including the discharge chamber for generating a laser beam; and

an intracavity homogenizer for homogenizing an intensity profile of the laser beam generated in the resonator, the intracavity homogenizer at least including:

a first bi-prism and a second bi-prism disposed within the resonant cavity and having the discharge chamber disposed therebetween, and

wherein optical axes of the first bi-prism and the second bi-prism are each at least substantially parallel to the optical axis of the laser beam.

16. The laser system of Claim 15, wherein the first bi-prism includes an angled face and a normal face, the angled face being oriented toward the discharge chamber including at least one segment oriented so that a normal to the segment forms an acute angle with an optical axis of the laser beam, and a normal to the normal face is at least substantially parallel to the optical axis of the laser beam.

17. The laser system of Claim 16, wherein the second bi-prism also includes an angled face and a normal face, the angled face being oriented toward the discharge chamber including at least one segment oriented so that a normal to the segment forms an acute angle with the optical axis of the laser beam, and a normal to the normal face is at least substantially parallel to the optical axis of the laser beam.

18. The laser system of Claim 17, wherein the planar face of the second bi-prism includes a reflective coating formed thereon opposite the angled face of the second bi-prism.

19. The laser system of Claim 16, wherein the planar face of the first bi-prism includes a reflective coating formed thereon opposite the angled face of the first bi-prism.

20. The laser system of Claim 15, wherein the resonant cavity further comprises a highly-reflective mirror as a resonator reflector, and wherein the first bi-prism is disposed between the discharge chamber and the highly-reflective mirror.

21. The laser system of Claim 20, wherein the second bi-prism includes an angled face and a normal face, the angled face being oriented toward the discharge chamber including at least one segment oriented so that a normal to the segment forms an acute angle with the optical axis of the laser beam, and a normal to the normal face is at least substantially parallel to the optical axis of the laser beam, and

wherein the planar face of the second bi-prism includes a reflective coating formed thereon opposite the angled face of the second bi-prism.

22. The laser system of Claim 15, wherein the resonant cavity further comprises a partially-reflective mirror as a resonator reflecting output coupler, and wherein the first bi-prism is disposed between the discharge chamber and the partially-reflective mirror.

23. The laser system of Claim 22, wherein the second bi-prism includes an angled face and a normal face, the angled face being oriented toward the discharge chamber including at least one segment oriented so that a normal to the segment forms an acute angle with the optical axis of the laser beam, and a normal to the normal face is at least substantially parallel to the optical axis of the laser beam, and

wherein the planar face of the second bi-prism includes a reflective coating formed thereon opposite the angled face of the second bi-prism.

24. The laser system of Claim 15, wherein the resonant cavity further comprises a roof prism as a resonator reflector, and wherein the first bi-prism is disposed between the discharge chamber and the roof prism.

25. The laser system of Claim 24, wherein the second bi-prism includes an angled face and a normal face, the angled face being oriented toward the discharge chamber including at least one segment oriented so that a normal to the segment forms an acute angle with the optical axis of the laser beam, and a normal to the normal face is at least substantially parallel to the optical axis of the laser beam, and

wherein the planar face of the second bi-prism includes a reflective coating formed thereon opposite the angled face of the second bi-prism.

26. The laser system of Claim 24, wherein the roof prism includes a highly-reflective coating formed thereon serving as a highly-reflective resonator reflector surface.

27. The laser system of Claim 24, wherein the roof prism and first bi-prism are formed together as a single optical component.

28. The laser system of Claim 27, wherein the roof prism includes a highly-reflective coating formed thereon serving as a resonator reflector surface.

29. An excimer or molecular fluorine laser system, comprising:

a discharge chamber filled with a gas mixture at least including a halogen-containing molecular species and a buffer gas;

a discharge circuit;

a plurality of electrodes within the discharge chamber and connected to the discharge circuit for energizing the gas mixture;

a resonant cavity including the discharge chamber for generating a laser beam;

a roof prism disposed within the resonant cavity as a resonator reflector; and

an intracavity homogenizer for homogenizing an intensity profile of the laser beam generated in the resonator, the intracavity homogenizer at least including:

a bi-prism disposed within the resonant cavity; and

wherein an optical axis of the bi-prism is at least substantially parallel to the optical axis of the laser beam.

30. The laser system of Claim 29, wherein the bi-prism is disposed between the discharge chamber and the roof prism.

31. The laser system of Claim 30, wherein the roof prism includes a reflective coating formed thereon serving as a resonator reflector surface.

32. The laser system of Claim 31, wherein the roof prism and first bi-prism are formed together as a single optical component.

33. The laser system of Claim 29, wherein the roof prism includes a reflective coating formed thereon serving as a first resonator reflector surface.

34. The laser system of Claim 33, wherein the bi-prism includes an angled face and a normal face, the angled face being oriented toward the discharge chamber including at least one segment oriented so that a normal to the segment forms an acute angle with the optical axis of the laser beam, and a normal to the normal face is at least substantially parallel to the optical axis of the laser beam, and

wherein the planar face of the bi-prism includes a reflective coating formed thereon opposite the angled face of the bi-prism as a second resonator reflector surface.

35. The laser system of Claim 33, wherein the bi-prism includes an angled face and a normal face, the angled face being oriented toward the discharge chamber including at least one segment oriented so that a normal to the segment forms an acute angle with the optical axis of the laser beam, and a normal to the normal face is at least substantially parallel to the optical axis of the laser beam, and

wherein an angled face of the bi-prism is oriented toward the discharge chamber.